

In the Claims:

Please replace the claims with the following set of claims:

--WHAT IS CLAIMED IS:

1. (Original): A horizontally burning, high intensity discharge lamp having (a) a base; (b) an light transparent outer envelope; and (c) an arc tube operatively mounted therein,

said base and said arc tube being rotationally fixed relative to each other and said base having means for predetermining the rotational orientation thereof when operatively mounted in a fixture,

said arc tube having (i) a pair of spaced apart coaxial electrodes, (ii) an upper portion longitudinally conforming generally between said electrodes to the shape of the arc to be drawn therebetween in the operation of the lamp, and (iii) a flattened lower portion,

the distance at all cross-sectional locations between said electrodes between the flattened lower portion and the axis of said electrodes being less than the distance between the upper portion and the axis of said electrodes.

2. (Original): A horizontally burning, high intensity discharge lamp having (a) a base, (b) an light transparent outer envelope and (c) an arc tube operatively mounted therein, said base and said arc tube being rotationally fixed relative to each other and said base having means for predetermining the rotational orientation thereof when operatively mounted in a fixture,

said arc tube having (i) a pair of spaced apart coaxial electrodes, (ii) an upper portion longitudinally conforming generally between said electrodes to the shape of the arc to be drawn therebetween in the operation of the lamp and conforming in cross section to the periphery of a circle, and (iii) a flattened lower portion no part of which is further from the axis of the circle defining the upper portion at the center of the arc tube than the radius of said upper portion defining circle.

3. (Previously Amended): A horizontally burning, high intensity discharge lamp having (a) a base, (b) a light transparent outer envelope and (c) an arc tube operatively mounted therein, said base and said arc tube being rotationally fixed relative to each other and said base having means for predetermining the rotational orientation thereof when operatively mounted in a fixture,

said arc tube having a pair of space apart electrodes, an upper portion longitudinally conforming generally between said electrodes to the shape of the arc to be drawn therebetween and a canoe-shaped lower portion.

4. (Previously Amended): The lamp of Claim 3 wherein said lower portion has a substantially planar flattened bottom.

5. (Previously Amended): The lamp of Claim 4 wherein said lower portion of said arc tube has an upwardly concave end to end and side to side flattened bottom.

6. (Original): The lamp of Claim 3 wherein said electrodes are tilted downwardly toward each other.

7. (Original): The lamp of Claim 3 wherein the width of said arc tube at the height of the free ends of said electrodes is approximately two thirds of the width of said arc tube at the same height at the center of said arc tube.

8. (Currently Amended): A horizontally burning, high intensity discharge lamp having (a) a base, (b) [an] a light transparent outer envelope and (c) [an] a double ended arc tube operatively mounted therein, said base and said arc tube being rotationally fixed relative to each other and said base having means for predetermining the rotational orientation thereof when operatively mounted in a fixture,

said arc tube having a pair of spaced apart electrodes, mounted one in each end of the arc tube, and tilted downwardly toward the center of said arc tube.

9. (Original): The lamp of Claim 8 wherein the width of said arc tube at the height of the free ends of said electrodes is approximately two thirds of the width of said arc tube at the same height at the center of said arc tube.

10. (Original): The lamp of Claim 8 wherein the width of said arc tube is greater than the height of said arc tube at the longitudinal center thereof.

11. (Original): The lamp of Claim 8 wherein the top of said arc tube is arched in the area between the electrodes to approximate the position of the arc when drawn in the operation of the lamp.

12. (Previously Amended): A horizontal burning HID arc tube having a pair of spaced apart electrodes and canoe-shaped lower portion.

13. (Original): The arc tube of Claim 12 including an upper portion longitudinally conforming generally between said electrodes to the shape of the arc to be drawn therebetween.
14. (Original): The arc tube of Claim 12 wherein said bottom portion is upwardly concave both longitudinally and transversely.
15. (Original): The arc tube of Claim 12 wherein the electrodes are tilted downwardly toward each other.
16. (Original): The arc tube of Claim 12 wherein said electrodes are closer to all parts of said bottom portion than to any part of said upper portion.
17. (Previously Amended): A horizontal burning double-ended HID arc tube having a pair of spaced apart electrodes, an upper portion longitudinally conforming generally between said electrodes to the shape of the arc to be drawn therebetween in the operation of the arc tube, and flattened bottom.
18. (Original): The arc tube of Claim 17 wherein said electrodes are tilted downwardly toward each other.
19. (Original): The arc tube of Claim 17 wherein said electrodes are closer to all parts of said bottom portion than to any part of said upper portion.
20. (Previously Amended): A horizontal burning double-ended HID arc tube having a pair of spaced apart electrodes, said electrodes are tilted downwardly toward each other.
21. (Original): The arc tube of Claim 20 including a flattened bottom portion.
22. (Previously Amended): The arc tube of Claim 20 wherein the sides of said

arc tube progressively narrow from the center of said arc tube towards both ends of said arc tube.

23. (Previously Amended): A horizontal burning HID arc tube having a pair of spaced apart electrodes and a lower portion having a flattened bottom, the distance from said electrodes to said bottom being less than the distance from electrodes to the upper portion of said arc tube.

24. (Original): The arc tube of Claim 23 wherein said upper portion is circular in cross section between the free ends of said electrodes, the radius of curvature of said upper portion increasing from said electrodes toward the center of the arc tube.

25. (Original): The arc tube of Claim 23 where said electrodes are lower than the axis of the circle of the upper portion at the center of the arc tube.

26. (Previously Amended): The arc tube of Claim 23 wherein the upper portion joins said lower portion below said electrodes.

27. (Previously Amended): A horizontal burning HID arc tube having a pair of spaced apart electrodes, a circular cross-section upper portion and a lower portion with a flattened bottom, the distance from said electrodes to said flattened bottom being less than the distance from electrodes to the upper portion thereof.

28. (Original): The arc tube of Claim 27 wherein the radius of curvature of said top portion increases from said electrodes to the center of the arc tube.

29. (Previously Amended): The arc tube of Claim 27 wherein said upper portion joins said lower portion below said electrodes.

30. (Previously Amended): A horizontal burning HID arc tube having a pair of spaced apart coaxial electrodes, a circular cross-section upper portion and a lower portion having a flattened bottom, said upper portion joins said lower portion below the elevation of said electrodes.

31. (Original): The arc tube of Claim 30 wherein the radius of curvature of said top portion increases from said electrodes to the center of the arc tube.

32. (Previously Amended): A horizontal burning HID arc tube having a pair of spaced apart coaxial electrodes, an upper portion longitudinally conforming generally between said electrodes to the shape of the arc to be drawn therebetween in the operation of the arc tube, and flattened bottom to thereby reduce the temperature differential in the arc tube walls.

33. (Previously Amended): The arc tube of Claim 32 wherein the lowest elevation of said lower portion is in the longitudinal center of the arc tube.

34. (Original): The arc tube of Claim 32 wherein said electrodes are closer to said bottom portion than to said upper portion at the longitudinal center of the arc tube.

35. (Original): The arc tube of Claim 32 wherein the sides of the arc tube progressively narrow from the longitudinal center thereof toward both ends thereof.

36. (Original): A horizontal burning HID arc tube having a pair of spaced apart electrodes, a generally circular cross-section upper portion and generally circular bottom portion, the radius of curvature of said bottom portion being substantially greater than the radius of said upper portions.

37. (Original): A horizontal burning HID arc tube having a pair of spaced apart electrodes and a flattened bottom portion concave upwardly both longitudinally and laterally.

38. (Currently Amended): A horizontal burning HID arc tube having a pair of spaced apart electrodes and a lower portion with a flattened bottom, the width of the arc tube at the height of said electrodes at the free ends of said electrodes being approximately  $2/3$  of the width of the arc tube at the height of said electrodes at the center of the arc tube.

39. (Original): The arc tube of Claim 38 wherein the ratio of the width to the height of the arc tube at the longitudinal center thereof is approximately one.

40. (Original): The arc tube of Claim 38 wherein the upper portion of the arc tube longitudinally conforms generally between said electrodes to the shape of the arc to be drawn therebetween in the operation of the arc tube.

41. (Previously Amended): An arc tube blank comprising an enlarged light emitting chamber intermediate tubular ends of the same diameter, said chamber having a lower portion with a flattened bottom.

42. (Original): The arc tube blank of Claim 41 wherein the ratio of the diameter of the tube to the maximum vertical height of said chamber is between about  $7/10$  and about  $7/30$  to thereby reduce the amount of heat required for the pinch seal.

43. (Original): The arc tube of Claim 41 wherein the ratio of the diameter of the tube to the maximum horizontal width of said chamber is between about  $7/10$  and about  $7/30$ .

44. (Original): The arc tube of Claim 41 wherein the ratio of the maximum vertical height of said chamber to the maximum horizontal width of said chamber is approximately one.

45. (Original): The arc tube of Claim 41 wherein the bottom of said chamber is flattened in an area between about 20 and about 80 percent of the maximum width of said chamber.

46. (Currently Amended) The [method] arc tube blank of Claim 41 wherein the bottom of said chamber is flattened in an area between about 20 and about 80 percent of the maximum length of said chamber.

47. (Previously Amended): The arc tube of Claim 46 wherein the bottom of said chamber in the longitudinal center thereof is flattened over a distance between about 50 and about 60 percent of the length of said chamber.

48. (Original): The arc tube of Claim 41 wherein the top of said chamber is arched.

49. (Original): The arc tube of Claim 41 wherein said chamber is widest at the longitudinal center thereof and progressively more narrow towards the ends of said chamber.

50. (Previously Amended): The arc tube blank of Claim 41 wherein the height of said chamber is the greatest at the longitudinal center of said chamber and progressively more narrow towards the ends of said chamber.

51. (New): The lamp of Claim 1 wherein the arc tube is substantially oval in horizontal cross-section at the elevation of the electrodes.



52. (New): The lamp of Claim 2 wherein the arc tube is substantially oval in horizontal cross-section at the elevation of the electrodes.

53. (New): The arc tube of Claim 38 wherein said electrodes are closer to said flattened bottom than to the uppermost portion of the arc tube at the longitudinal center thereof.